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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/818,670	03/28/2001	Sorcha O'Callaghan	922-126	2387
23117	7590	06/09/2005	EXAMINER	
NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			SHEW, JOHN	
			ART UNIT	PAPER NUMBER
			2664	

DATE MAILED: 06/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/818,670

Applicant(s)

O'CALLAGHAN ET AL.

Examiner

John L. Shew

Art Unit

2664

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 2/16/2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 February 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to because there were no drawing sheets specified to be deleted and as such the order and number of the drawing sheets must be maintained.

FIG. 1 heading indicates "1/10" should be "1/12".

FIG. 2 heading indicates "2/10" should be "2/12".

FIG. 7 heading indicates "7/10" should be "8/12"

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application

must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

1. The disclosure is objected to because of the following informalities:

Page 9 line 8 cites "block 23" should be "block 24".

Page 15 line 23 cites "flag has not been" which appears to be in conflict with FIG. 6 which presents the case of "flag has been".

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 6, 7, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muller et al. in view of Epps et al.

Claim 1, 6, Muller teaches a network switch for receiving data packets including header portions (FIG. 2, Abstract lines 3-6) referenced by Switch Fabric 210 with Network Interface 205 with Input Port Process receiving input packets and forwarding header information to search engine, and for selectively forwarding said data packets (Abstract lines 11-14) referenced by the forwarding based on a particular VLAN, said switch including a look-up engine operative to obtain associated data in response to the header portion (FIG. 5, column 6 lines 7-11, lines 18-28) referenced by the search engine obtaining information based on the packet header Step 515 as to the type of packet to be routed and Destination Address, and a network processor which is operative to perform a processing function in response to at least one of said header portion and said associated data (FIG. 3, column 6 lines 2-6, lines 25-28) referenced by the Input Packet Processor 310 which includes Logic unit 314 which operates on the header portion by replacement of predetermined fields such as Destination Address, wherein said look-up engine provides for said network processor a first indication said first indication indicating that said associated data has been obtained (column 6 lines 28-34) referenced by the search engine issuance of a DA replacement control signal indicating that the associated Destination Address has been obtained, and said network processor is operative in response to said first indication to cause modification of said

associated data in accordance with said processing function (column 6 lines 28-34) referenced by the IPP 310 selectively replacing or inserting the Destination Address into the VLAN tag field, and to provide to said look-up engine a second indication said second indication indicating that said modification has been performed (FIG. 3) is obvious since the modification must be completed in a finite amount of time for the Input Packet Processor 310 to continue with the next packet out of the FIFO Buffer 312.

Muller does not teach the use of a register for receiving a header portion of a packet. Epps teaches a register for receiving a header portion of a packet (FIG. 3, FIG. 5) referenced by the Packet Information Register 530 which receives header portion information from the Receive FIFO buffer 215.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the packet header modification of Epps to the database search engine of Muller for the purpose of faster parallel pipeline processing of the header information.

Claim 2, 7, Muller teaches a network switch (FIG. 2) referenced by Switch Fabric 210, wherein said associated data includes header data for the packet as it is to be forwarded (FIG. 3, column 6 lines 24-34) referenced by the associated DA field to be used as header VLAN tag field replacement for forwarding to the Packet Memory 325, and said network processor executes said processing function to cause modification of said header data (FIG. 3, column 6 lines 24-34) referenced by the Input Packet Processor 310 processing the replacement of the header field VLAN tag.

Claim 11, Muller teaches a method of operating a network switch for receiving data packets including header portions (FIG. 2, Abstract lines 3-6) referenced by Switch Fabric 210 with Network Interface 205 with Input Port Process receiving input packets and forwarding header information to search engine, and for selectively forwarding said data packets (Abstract lines 11-14) referenced by the forwarding based on a particular VLAN, comprising receiving a header portion of a packet (FIG. 5, column 6 lines 7-11, column 7 lines 37-42) referenced by Step 510 where the Input Packet Processor receives the packet and buffers the header into a FIFO, operating a loop-up engine to obtain associated packet forwarding data in response to the header portion (FIG. 5, column 6 lines 7-11, lines 18-28) referenced by the search engine obtaining information based on the packet header Step 515 as to the type of packet to be routed and Destination Address, providing from said look-up engine to said network processor a first indication said first indication indicating that said associated packet forwarding data has been obtained (column 6 lines 28-34) referenced by the search engine issuance of a DA replacement control signal indicating that the associated Destination Address has been obtained, performing a processing function by means of a network processor in response to at least one of said header portion and said associated packet forwarding data (FIG. 3, column 6 lines 2-6, lines 25-28) referenced by the Input Packet Processor 310 which includes Logic unit 314 which operates on the header portion by replacement of predetermined fields such as Destination Address, operating said

network processor in response to said first indication to cause a modification of said associated packet forwarding data in accordance with said processing function (column 6 lines 28-34) referenced by the IPP 310 selectively replacing or inserting the Destination Address into the VLAN tag field, and providing to said look-up engine a second indication said second indication indicating that said modification has been performed (FIG. 3) is obvious since the modification must be completed in a finite amount of time for the Input Packet Processor 310 to continue with the next packet out of the FIFO Buffer 312.

3. Claims 3, 4, 5, 8-10, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muller and Epps as applied to claims 1-2, 6-7, 11 above, and further in view of Ambe et al.

Claims 3, 4, 5, 8-10, 12 Muller and Epps disclose a network switch with a database search engine for information to modify packet header with associated destination addresses using input registers.

They do not disclose the associated data being port bitmasks.



Ambe teaches said associated data includes a port bitmask (Fig. 2, page 6 column 2 paragraphs [0119]-[0122]) referenced by the ARL Search Engine accessing the Port Based VLAN Table to obtain the VLAN Port Bitmap associated data, and said network processor executes said processing function to cause modification of said port bitmask (Fig. 2, page 5 column 2 paragraphs [0096]-[0099]) referenced by the Fast Filtering Processor modifying the packet in terms of tag header based on the port bitmap.

Ambe teaches said look-up engine causes the provision of a final port bitmask for said packet (page 7 column 1 paragraph [0128]) referenced by the ARL search engine checking the forwarding state of the egress port and modifying the PortBitmap to determine the Final PortBitmap.

Ambe teaches said associated data includes a field indicating replication of the packet and wherein said network processor is operative to access said field and to control a replication process for the packet (page 12 column 2 paragraph [0236], page 13 column 1 paragraph [0237]) referenced by the inclusion of a bit in the PortBitmap for multiple copies with the CPU being responsible for sending multiple copies.

Ambe teaches said associated forwarding data comprises a port bitmask (Fig. 2, page 6 column 2 paragraphs [0119]-[0122]) referenced by the ARL Search Engine accessing the Port Based VLAN Table to obtain the VLAN Port Bitmap associated data.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a database search of egress port bitmaps as suggested by Ambe with the search engine of Muller and Epps for the purpose of gigabit switching of multicast packets through egress ports (Abstract lines 15-20).

### ***Response to Arguments***

The suggested corrections to the drawings were incorporated, however new objections have been raised due to the revised sequence and numbering of the figure pages.

The suggested corrections to the specification at pages 9 and 15 were not effected and are thus the objections are maintained.

Applicant's argument over rejection of claim 1 has been fully considered but they are not persuasive.

Regarding the argument traversing the rejection of Claim 1, it appears the reference observed is not the Muller reference (Patent number 6128666) cited in the office action.

Therefore there is no correspondence between the rejection and the claim limitations.

Muller column 6 lines 28-34 cites:

"For example, this can simply be done  
using multiplexor logic to select either the original value  
found in the DA field or the DA value received from the  
search engine 315 based upon a DA replacement control  
signal issued by the search engine 315. For VLAN support,

the IPP 310 selectively replaces or inserts the value in the VLAN tag field.”

This is clearly different from the cited Muller passage by the applicant. Examiner suggest a review of Muller (Patent number 6128666) for the appropriate correspondence to the claim limitations.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John L. Shew whose telephone number is 571-272-3137. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
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